

(2) Tier 3 and later engines must comply with the exhaust emission standards when tested using test fuels containing 15 ppm or less sulfur (ultra low-sulfur diesel fuel). Manufacturers may use low-sulfur diesel fuel (without request) to certify an engine otherwise requiring an ultra low-sulfur test fuel; however, emissions may not be corrected to account for the effects of using higher sulfur fuel.

(3) Engines designed to operate using residual fuel must comply with the standards and requirements of this part when operated using residual fuel in addition to complying with the requirements of this part when operated using diesel fuel.

(e) *Useful life.* Your engines must meet the exhaust emission standards of this section over their full useful life, expressed as a period in years or hours of engine operation, whichever comes first.

(1) The minimum useful life values are as follows, except as specified by paragraph (e)(2) or (3) of this section:

(i) 10 years or 1,000 hours of operation for recreational Category 1 engines

(ii) 5 years or 3,000 hours of operation for commercial engines below 19 kW.

(iii) 7 years or 5,000 hours of operation for commercial engines at or above 19 kW and below 37 kW.

(iv) 10 years or 10,000 hours of operation for commercial Category 1 engines at or above 37 kW.

(v) 10 years or 20,000 hours of operation for Category 2 engines.

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild indicates a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(3) You may request in your application for certification that we approve a shorter useful life for an engine family. We may approve a shorter useful life, in hours of engine operation but not in years, if we determine that these engines will rarely operate longer than

the shorter useful life. If engines identical to those in the engine family have already been produced and are in use, your demonstration must include documentation from such in-use engines. In other cases, your demonstration must include an engineering analysis of information equivalent to such in-use data, such as data from research engines or similar engine models that are already in production. Your demonstration must also include any overhaul interval that you recommend, any mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The useful life value may not be shorter than any of the following:

(i) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

(f) *Applicability for testing.* The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in §1042.505, including certification, production-line, and in-use testing. The not-to-exceed standards apply for all testing performed according to the procedures of subpart F of this part.

[73 37243, June 30, 2008, as amended at 73 FR 59192, Oct. 8, 2008; 74 FR 8425, Feb. 24, 2009; 75 FR 22996, Apr. 30, 2010]

§ 1042.104 Exhaust emission standards for Category 3 engines.

(a) *Duty-cycle standards.* Exhaust emissions from your engines may not exceed emission standards, as follows:

(1) Measure emissions using the test procedures described in subpart F of this part. Note that while no PM standards apply for Category 3 engines, PM emissions must be measured for certification testing and reported under §1042.205. Note also that you are not required to measure PM emissions for other testing.

(2) NO_x standards apply based on the engine's model year and maximum in-use engine speed as shown in the following table:

TABLE 1 TO § 1042.104—NO_x EMISSION STANDARDS FOR CATEGORY 3 ENGINES (G/KW-HR)

Emission standards	Model year	Maximum in-use engine speed		
		Less than 130 RPM	130–2000 RPM ^a	Over 2000 RPM
Tier 1	2004–2010 ^b	17.0	45.0·n (–0.20)	9.8
Tier 2	2011–2015	14.4	44.0·n (–0.23)	7.7
Tier 3	2016 and later	3.4	9.0·n (–0.20)	2.0

^a Applicable standards are calculated from n (maximum in-use engine speed, in RPM, as specified in § 1042.140). Round the standards to one decimal place.

^b Tier 1 NO_x standards apply as specified in 40 CFR part 94 for engines originally manufactured in model years 2004 through 2010. They are shown here only for reference.

(3) The HC standard for Tier 2 and later engines is 2.0 g/kW-hr. This standard applies as follows:

(i) Alcohol-fueled engines must comply with HC standards based on THCE emissions.

(ii) Natural gas-fueled engines must comply with HC standards based on NMHC emissions.

(iii) Diesel-fueled and all other engines not described in paragraph (a)(3)(i) or (ii) of this section must comply with HC standards based on THC emissions.

(4) The CO standard for Tier 2 and later engines is 5.0 g/kW-hr.

(b) *Averaging, banking, and trading.* Category 3 engines are not eligible for participation in the averaging, banking, and trading (ABT) program as described in subpart H of this part.

(c) *Mode caps.* Measured NO_x emissions may not exceed the cap specified in this paragraph (c) for any applicable duty-cycle test modes with power greater than 10 percent maximum engine power. Calculate the mode cap by multiplying the applicable NO_x standard by 1.5 and rounding to the nearest 0.1 g/kW-hr. Note that mode caps do not apply for pollutants other than NO_x and do not apply for any modes of operation outside of the applicable duty cycles in §1042.505. Category 3 engines are not subject to not-to-exceed standards.

(d) *Useful life.* Your engines must meet the exhaust emission standards of this section over their full useful life, expressed as a period in years or hours of engine operation, whichever comes first.

(1) The minimum useful life value is 3 years or 10,000 hours of operation.

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild indicates a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(e) *Applicability for testing.* The duty-cycle emission standards in this section apply to all testing performed according to the procedures in §1042.505, including certification, production-line, and in-use testing. See paragraph (g) of this section for standards that apply for certain other test procedures, such as some production-line testing.

(f) *Domestic engines.* Engines installed on vessels excluded from 40 CFR part 1043 because they operate only domestically may not be certified for use with residual fuels.

(g) *Alternate installed-engine standards.* NO_x emissions may not exceed the standard specified in this paragraph (g) for test of engines installed on vessels when you are unable to operate the engine at the test points for the specified duty cycle, and you approximate these points consistent with the specifications of section 6 of Appendix 8 to the NO_x Technical Code (incorporated by reference in §1042.910). Calculate the alternate installed-engine standard by multiplying the applicable NO_x standard by 1.1 and rounding to the nearest 0.1 g/kW-hr.

[75 FR 22997, Apr. 30, 2010]

§ 1042.107 Evaporative emission standards.

(a) There are no evaporative emission standards for diesel-fueled engines, or